

What is claimed is:

1. A baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with different spread codes into one baseband signal, comprising:

5 a plurality of baseband filters for respectively limiting bands of the respective baseband signals input thereto;

10 adding means for adding and code-multiplexing the plurality of baseband signals with the bands limited by said respective baseband filters to produce one baseband signal;

15 level adjusting means for adjusting an amplitude value of the baseband signal produced by said adding means based on a control signal to output the signal;

20 D/A converting means for converting the baseband signal which is a digital signal outputted from said level adjusting means into an analog signal; and

25 gain setting means for calculating a gain set value with which the amplitude value of the baseband signal outputted from said level adjusting means is adjusted to an amplitude value matching a dynamic range of said D/A converting means based on the number of transmission codes which is the number of multiplexed baseband signals, and for notifying said level adjusting means of the gain set

25 value with said control signal.

2. A baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with different spread codes into one baseband signal, comprising:

5 a plurality of baseband filters for respectively limiting bands of the respective baseband signals input thereto;

a plurality of level adjusting means for respectively adjusting amplitude values of the plurality of 10 baseband signals with the bands limited by said respective baseband filters based on a control signal to output the signals;

adding means for adding and code-multiplexing the plurality of baseband signals outputted from said 15 respective level adjusting means to produce one baseband signal;

D/A converting means for converting the baseband signal which is a digital signal outputted from said adding means into an analog signal; and

20 gain setting means for calculating a gain set value with which an amplitude value of the baseband signal outputted from said adding means is adjusted to an amplitude value matching a dynamic range of said D/A

converting means based on the number of transmission codes  
25 which is the number of multiplexed baseband signals, and  
for notifying said level adjusting means of the gain set  
value with said control signal.

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3. A baseband signal multiplexing circuit for  
multiplexing a plurality of baseband signals spread with  
different spread codes into one baseband signal,  
comprising:

5 a plurality of baseband filters for respectively  
limiting bands of the respective baseband signals input  
thereto;

a plurality of level adjusting means for  
respectively adjusting amplitude values of the plurality of  
10 baseband signals with the bands limited by said respective  
baseband filters based on a plurality of control signals to  
output the signals;

adding means for adding and code-multiplexing  
the plurality of baseband signals outputted from said  
15 respective level adjusting means to produce one baseband  
signal;

D/A converting means for converting the baseband  
signal which is a digital signal outputted from said adding  
means into an analog signal; and

20 gain setting means for calculating, for

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respective said level adjusting circuits, gain set value  
with which an amplitude value of the baseband signal  
outputted from said adding means is adjusted to an  
amplitude value matching a dynamic range of said D/A  
25 converting means based on the number of transmission codes  
which is the number of multiplexed baseband signals and  
based on interchannel ratio information for specifying an  
amplitude ratio of the respective baseband signals when the  
plurality of baseband signals are multiplexed, and for  
30 notifying said level adjusting means of the gain set values  
with said plurality of control signals.

4. A baseband signal multiplexing circuit for  
multiplexing a plurality of baseband signals spread with  
different spread codes into one baseband signal,  
comprising:

5 adding means for adding and code-multiplexing  
the respective baseband signals input thereto to produce  
one baseband signal;

a baseband filter for limiting a band of the  
baseband signal produced by said adding means;

10 a level adjusting means for adjusting an  
amplitude value of the baseband signal with the band  
limited by said baseband filter based on a control signal  
to output the signal;

D/A converting means for converting the baseband  
15 signal which is a digital signal outputted from said level  
adjusting means into an analog signal; and  
gain setting means for calculating a gain set  
value with which the amplitude value of the baseband signal  
outputted from said level adjusting means is adjusted to an  
20 amplitude value matching a dynamic range of said D/A  
converting means based on the number of transmission codes  
which is the number of multiplexed baseband signals and,  
for notifying said level adjusting means of the gain set  
value with said control signal.

5. A baseband signal multiplexing circuit for  
multiplexing a plurality of baseband signals spread with  
different spread codes into one baseband signal,  
comprising:

5 a plurality of baseband filters for respectively  
limiting bands of the respective baseband signals input  
thereto;

10 a plurality of first level adjusting means for  
respectively adjusting amplitude values of the plurality of  
baseband signals with the bands limited by said respective  
baseband filters based on a plurality of first control  
signals to output the signals;

adding means for adding and code-multiplexing

the plurality of baseband signals outputted from said  
15 respective first level adjusting means to produce one  
baseband signal;

second level adjusting means for adjusting an  
amplitude value of the baseband signal produced by said  
adding means based on a second control signal to output the  
20 signal;

D/A converting means for converting the baseband  
signal which is a digital signal outputted from said second  
level adjusting into an analog signal; and

gain setting means for outputting to said  
25 respective first level adjusting means the first control  
signals for adjusting amplitude ratios of the respective  
baseband signals in accordance with interchannel ratio  
information for specifying amplitude ratios of the  
respective baseband signals when the plurality of baseband  
30 signals are multiplexed, for calculating a gain set value  
with which the amplitude value of the baseband signal  
outputted from said second level adjusting means is  
adjusted to an amplitude value matching a dynamic range of  
said D/A converting means based on the number of  
35 transmission codes which is the number of multiplexed  
baseband signals, and for notifying said second level  
adjusting means of the gain set value with said second  
control signal.

6. A baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with different spread codes into one baseband signal, comprising:

5           a plurality of first level adjusting means for respectively adjusting amplitude values of said respective baseband signals input thereto based on a plurality of first control signals;

10           adding means for adding and code-multiplexing the plurality of baseband signals outputted from said respective first level adjusting means to produce one baseband signal;

              a baseband filter for limiting a band of the baseband signal produced by said adding means;

15           second level adjusting means for adjusting an amplitude value of the baseband signal with the band limited by said baseband filter based on a second control signal to output the signal;

20           D/A converting means for converting the baseband signal which is a digital signal outputted from said second level adjusting means into an analog signal; and

              gain setting means for outputting to said respective first level adjusting means the first control signals for adjusting an amplitude ratio of the respective

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25 baseband signals in accordance with interchannel ratio information for specifying an amplitude ratio of the respective baseband signals when the plurality of baseband signals are multiplexed, for calculating a gain set value with which the amplitude value of the baseband signal

30 outputted from said second level adjusting means is adjusted to an amplitude value matching a dynamic range of said D/A converting means based on the number of transmission codes which is the number of multiplexed baseband signals, and for notifying said second level

35 adjusting means of the gain set value with said second control signal.

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7. A level adjusting circuit comprising:

a plurality of bit shift means for shifting input baseband signals to the right by different certain bits;

5 a plurality of switches for selecting outputs from said respective bit shift means in accordance with a desired gain desired to be set; and

an adder for adding outputs from said respective switches for output as one signal.

8. A baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with

different spread codes into one baseband signal,  
comprising:

5           a plurality of baseband filters for respectively  
limiting bands of the respective baseband signals input  
thereto, and for adjusting amplitude values of the  
respective baseband signals based on a control signal to  
output the signals;

10          adding means for adding and code-multiplexing  
the plurality of baseband signals with the bands limited by  
said respective baseband filters to produce one baseband  
signal;

15          D/A converting means for converting the baseband  
signal which is a digital signal outputted from said adding  
means into an analog signal; and

20          gain setting means for calculating a gain set  
value with which an amplitude value of the baseband signal  
outputted from said adding means is adjusted to an  
amplitude value matching a dynamic range of said D/A  
converting means based on the number of transmission codes  
which is the number of multiplexed baseband signals and for  
notifying said level adjusting means of the gain set value  
with said control signal.

9.       The baseband signal multiplexing circuit  
according to claim 8, wherein each of said respective

baseband filters includes:

- a plurality of delay elements connected in
- 5 series, for delaying input signals by a certain time period
- to output the signals as tap outputs;
- a plurality of coefficient multipliers, for
- multiplying each of the tap outputs by a filter coefficient
- of a plurality of preset filter coefficients that is
- 10 specified by a control signal; and
- an adder for adding a plurality of output
- signals from said respective coefficient multipliers to
- output the resulting signal.

10. A method of controlling a transmission level in  
a baseband signal multiplexing circuit for multiplexing a  
plurality of baseband signals spread with different spread  
codes into one baseband signal, said method comprising the  
5 steps of:

- calculating a gain set value with which an
- amplitude value of a multiplexed baseband signal matches a
- dynamic range in D/A conversion based on the number of
- transmission codes which is the number of multiplexed
- 10 baseband signals; and
- adjusting the amplitude value of the code-
- multiplexed baseband signal prior to the D/A conversion
- based on the gain set value.

11. A method of controlling a transmission level in  
a baseband signal multiplexing circuit for multiplexing a  
plurality of baseband signals spread with different spread  
codes into one baseband signal, said method comprising the  
5 steps of:

limiting bands of the respective baseband  
signals input thereto;

10 adding and code-multiplexing the plurality of  
baseband signals with the limited bands to produce one  
baseband signal;

15 calculating a gain set value with which an  
amplitude value of the code-multiplexed baseband signal  
matches a dynamic range in D/A conversion based on the  
number of transmission codes which is the number of  
multiplexed baseband signals;

adjusting the amplitude value of the code-  
multiplexed baseband signal based on the gain set value;  
and

20 D/A converting the baseband signal with the  
adjusted amplitude value into an analog signal.

12. A method of controlling a transmission level in  
a baseband signal multiplexing circuit for multiplexing a  
plurality of baseband signals spread with different spread

codes into one baseband signal, said method comprising the

5 steps of:

limiting bands of the respective baseband signals input thereto;

calculating a gain set value with which amplitude values of the plurality of baseband signals with  
10 the limited bands match a dynamic range in D/A conversion based on the number of transmission codes which is the number of multiplexed baseband signals;

adjusting the amplitude values of the plurality of baseband signals with the limited bands based on the  
15 gain set value;

adding and code-multiplexing the plurality of baseband signals after the adjustment of the amplitude values to produce one baseband signal; and

D/A converting the baseband signal after the  
20 code-multiplexing into an analog signal.

13. A method of controlling a transmission level in a baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with different spread codes into one baseband signal, said method comprising the  
5 steps of:

limiting bands of the respective baseband signals input thereto;

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calculating, for the respective baseband signals,  
gain set values with which amplitude values of the  
10 plurality of baseband signals with the limited bands match  
a dynamic range in D/A conversion based on the number of  
transmission codes which is the number of multiplexed  
baseband signals;

adjusting the amplitude values of the plurality  
15 of baseband signals with the limited bands based on the  
gain set values;

adding and code-multiplexing the plurality of  
baseband signals after the adjustment of the amplitude  
values to produce one baseband signal; and  
20 D/A converting the baseband signal after the  
code-multiplexing into an analog signal.

14. A method of controlling a transmission level in  
a baseband signal multiplexing circuit for multiplexing a  
plurality of baseband signals spread with different spread  
codes into one baseband signal, said method comprising the  
5 steps of:

adding and code-multiplexing the respective  
baseband signals input thereto to produce one baseband  
signal;

limiting a band of the code-multiplexed baseband  
10 signal;

calculating a gain set value with which an amplitude value of the baseband signal with the limited band matches a dynamic range in D/A conversion based on the number of transmission codes which is the number of

15 multiplexed baseband signals;

adjusting the amplitude value of the baseband signal with the limited band based on the gain set value; and

D/A converting the baseband signal after the  
20 adjustment of the amplitude value into an analog signal.

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15. A method of controlling a transmission level in a baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with different spread codes into one baseband signal, said method comprising the  
5 steps of:

limiting bands of the respective baseband signals input thereto;

adjusting respective amplitude values of the plurality of baseband signals with the limited bands based  
10 on a specified ratio;

adding and code-multiplexing the respective baseband signals after the adjustment of the amplitude values to produce one baseband signal;

calculating a gain set value with which an

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15 amplitude value of the code-multiplexed baseband signal matches a dynamic range in D/A conversion based on the number of transmission codes which is the number of multiplexed baseband signals;

20 adjusting the amplitude value of the code-multiplexed baseband signal based on the gain set value; and

D/A converting the baseband signal after the adjustment of the amplitude value based on the gain set value into an analog signal.

16. A method of controlling a transmission level in a baseband signal multiplexing circuit for multiplexing a plurality of baseband signals spread with different spread codes into one baseband signal, said method comprising the 5 steps of:

adjusting respective amplitude values of the respective baseband signals input thereto based on a specified ratio;

10 adding and code-multiplexing the respective baseband signals after the adjustment of the amplitude values to produce one baseband signal;

limiting a band of the code-multiplexed baseband signal;

calculating a gain set value with which an

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15 amplitude value of the baseband signal with the limited band matches a dynamic range in D/A conversion based on the number of transmission codes which is the number of multiplexed baseband signals;

adjusting the amplitude value of the baseband  
20 signal with the limited band based on the gain set value;  
and

D/A converting the baseband signal after the  
adjustment of the amplitude value based on the gain set  
value into an analog signal.

17. A method of controlling a transmission level in  
a baseband signal multiplexing circuit for multiplexing a  
plurality of baseband signals spread with different spread  
codes into one baseband signal, said method comprising the  
5 steps of:

calculating a gain set value with which  
amplitude values of the respective baseband signals input  
thereto match a dynamic range in D/A conversion based on  
the number of transmission codes which is the number of  
10 multiplexed baseband signals;

limiting bands of the input respective baseband  
signals, and adjusting the amplitude values of the  
respective baseband signals based on the gain set value by  
selecting a filter coefficient to be multiplied by each of

15 tap outputs obtained by delaying the input baseband signals by a certain time period;

adding and code-multiplexing the plurality of baseband signals with the limited bands and the adjusted amplitude values to produce one baseband signal; and

20 converting the code-multiplexed baseband signal which is a digital signal into an analog signal.